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(54) **Two-lobed filter bag for products for infusion and method for making the same**

(57) A two-lobed filter bag (1) envisages a thread (6), whose end (6a), which defines a point of connection (A) with the filter bag (1), is attached to the free end (3c) of one of the lobes (3) forming the bag, and whose other end (6b), which is connected to a pick-up label (7), is

attached to the free end (2c) of the other lobe (2), so that the portion (P) of thread (6) between the two ends (6a, 6b) is positioned, in a packaging configuration, on surfaces (2a, 3a) of the lobes (2, 3) in contact with one another and/or the base (5) of the filter bag (1).



EP 1 016 599 A1

Description

[0001] The present invention relates to a two-lobed filter bag for products for infusion, such as tea, camomile and similar products.

[0002] In the production of said filter bags, one of the main requirements felt by manufacturers, in addition to commercial requirements, is to simplify the machines for the manufacture of such two-lobed filter bags as far as possible, since this type of product is not one of the most simple to obtain.

[0003] In their constant efforts to reduce the cost of the individual products, manufacturers employed solutions which could increase the productivity of the machines, or other solutions which could use diverse basic products. For example, the use of heat-sealable filter paper, or elements which seal the bags using a metal staple, gluing or "additional blobs" of heat-sealable material and the use of adhesive or non-adhesive labels.

[0004] The present text does not refer to the sector of the classic two-lobed bag sealed and attached to the thread and label using metal staples. Amongst the solutions which envisage the use of heat-sealable filter paper, the technique illustrated, for example, in patent IT - 1.187.308 is known, in which the two-lobed bags are obtained from a continuous web of filter paper, upon which a succession of doses are placed, at equal distances from one another then, for each bag, a tubular section of filter paper is defined during a tube forming stage in which it is closed by folding and/or longitudinal sealing.

[0005] The two pockets of the bag are defined by a series of transversal seals, creating separate pockets or lobes, each with a base and free end. A continuously fed thread is then positioned centrally and longitudinally on the tubular web, labels already being attached to the thread, at regular intervals, by a blob of heat-sealable material.

[0006] Positioning of the thread is followed by a stage in which the tubular web is cut to define a tubular section comprising two pockets or lobes and a length of thread, the ends of which are attached to the free ends of the pockets by the above-mentioned blob of heat-sealable material. In the centre of the section thus obtained a characteristic "W"-shaped fold is then made, allowing separation of the two opposite lobes or chambers. The two lobes are then rotated about the fold, until they are alongside one another, then they are stably joined by heat-sealing to form the filter bag as a whole, that is to say, with a thread extending longitudinally and wrapped around the package.

[0007] In a different thread - bag connection solution, see patent EP - 448.325, the filter bag comprises two chambers or lobes obtained from a pair of webs, fed one above the other, following the depositing of product doses, and heat-sealed at the edges, then folded one towards the other with the characteristic "W"-shaped fold. As in the previous case, the thread to which the label is

attached may be wound longitudinally around the filter bag with its ends heat-sealed to the relative surfaces, or may be positioned on a single surface of the filter bag and gathered there under the pick-up label, which also serves to hold the thread in place.

[0008] Over time, such types of filter bags have displayed disadvantages due, in particular, to the complexity of the solution which uses the blob of heat-sealable material (in addition to the increased cost, due to an extra element - the blob of heat-sealable material), and to the fragility of the zone at which the surface of the filter bag and the end of the thread are joined (normally by heat-sealing or blobs of glue - in a concentrated zone).

[0009] The fragility of the join may cause the thread to be detached from the filter bag during packaging and handling of the package - bag, as well as during preparation of the infusion or as it is removed from the container. Moreover, the structure of the bag as it has been made until now is not ideal for fast handling both during packaging (on the machine) and during final use.

[0010] The aim of the present invention is, therefore, to overcome the above-mentioned disadvantages by providing a two-lobed filter bag which is extremely simple to make, very practical to use and safe for making infusions, with a good appearance.

[0011] The technical features of the present invention, in accordance with the above-mentioned aims, are set out in the claims herein and the advantages more clearly illustrated in the detailed description which follows, with reference to the accompanying drawings, which illustrate a preferred embodiment without limiting the scope of application, and in which:

- Figure 1 is a top plan view of a section of filter paper used to make the filter bag in accordance with the present invention;
- Figure 1a is a top plan view of the section of filter paper illustrated in Figure 1, with a thread deposited on the section;
- Figures 1b and 1c are top plan views of two other sections of filter paper used to make the filter bag, with the thread arranged on the surface in two different configurations;
- Figures 2, 2a and 2b are perspective views with some parts cut away to better illustrate others, of a succession of stages for folding and joining the ends of the filter bag, in accordance with the present invention;
- Figures 3, 3a and 4 are perspective views with some parts cut away to better illustrate others, of another succession of stages for obtaining the filter bag packaging configuration disclosed;
- Figure 5 is a side view of the filter bag made in accordance with the present invention, in a packaging configuration;
- Figure 6 is a front view of the filter bag made in accordance with the present invention, in a packaging configuration;

- Figures 7 to 11 are perspective views with some parts cut away to better illustrate others, of a succession of stages for bringing the filter bag from a packaging configuration to a handling configuration for infusion of the bag;
- Figure 12 is a front view of the filter bag in the infusion configuration.

[0012] With reference to the accompanying drawings and in particular Figures 5, 6 and 12, the filter bag disclosed, defined as being of the two-lobed type, is used for containing and using products for infusion, such as tea, camomile and similar products.

[0013] Such a filter bag, labelled as a whole with the numeral 1, comprises two pockets or lobes 2 and 3, made of filter paper, each holding a dose 4 of the product for infusion (the product is illustrated with a dashed line). The lobes 2 and 3 are positioned in such a way that one surface 2a and 3a of each is opposite and/or in contact with the other and they are joined together at one end 2b and 3b, defining the base 5 of the filter bag 1.

[0014] One end 6a of a bag support thread 6 is attached to one lobe, in this case labelled 3, of the filter bag 1, defining a connection point A. The other end 6b of the thread 6 is attached to a pick-up label 7 for manipulating the filter bag 1 during infusion (clearly illustrated in Figure 12).

[0015] The end 6a of the thread 6 defining the connecting point A with the filter bag 1, see in particular Figures 1a to 4 and the relative letters, is attached to the free end 3c of the lobe 3, whilst the other end 6b of the thread, attached to the pick-up label 7, is attached to the free end 2c of the other lobe 2. In this way, the portion P of thread 6 between the two ends 6a and 6b is arranged in a packaging configuration, on the surfaces 2a and 3a of the lobes 2 and 3 which make contact with one another and on the base 5, that is to say, it is completely protected by the filter bag 1.

[0016] More specifically, the end 6b of the thread 6 attached to the pick-up label 7 is attached to an additional end portion 8 of the free end 2c of the lobe 2 together with the pick-up element 7, again in a filter bag packaging configuration.

[0017] The connections described until now are made on the two lobes 2 and 3 closed by a heat-sealed zone or section 9 and 10 at the corresponding free end 2c and 3c. The two ends 6a and 6b of the thread 6 are attached to the free ends 3c and 2c at the above-mentioned heat-sealed zones 10 and 9, one of which (labelled 9) comprises the additional end section 8 on the lobe 2.

[0018] In order to obtain the additional end section 8, the length S of the transversal heat-sealed zone 9, along the lobe 2, is preferably longer than the length S1 of the opposite heat-sealed zone 10. As is clearly illustrated in Figure 1, the additional end portion 8 is defined and delimited by a transversal weakening line L made in the heat-sealed zone 9 of the corresponding lobe 2.

[0019] As can also be seen in Figures 3 to 6, this weakness L allows the additional end portion 8 to be folded, in the packaging configuration and together with the end 6b of the thread 6, towards the outer surface 3d of the lobe 3 (wrapping around the upper part of the filter bag, see also arrow F1 in Figure 3a). In this way, the pick-up label 7 is positioned on said surface in such a way that it occupies the minimum amount of space possible.

[0020] Moreover, the weakness L allows detachment of the additional end portion 8, together with the end 6b of the thread 6 attached to the end portion and the pick-up label 7, so that during use of the bag 1, it allows the portion P of thread 6 to exit the bag as the pick-up label 7 is moved away from the bag 1 (see Figures 7 to 12).

[0021] Observation of the end 6a of the thread 6 which defines the point of connection A with the bag 1 reveals, in particular in Figures 1a, 1b and 1c, that the end 6a consists of a section P1 of thread, attached to the end 3c of the lobe 3, defining a loop, that is to say, a stable, extensive contact surface between the thread 6 and the lobe 3.

[0022] More specifically, the loop of the section P1 of thread has the shape of a "U" lying on its side and is positioned completely within the heat-sealed zone 10.

[0023] As illustrated in Figure 4, the structure of the filter bag 1 is completed by the fact that along a zone coinciding with the heat-sealed zones 9 and 10, the free ends 2c and 3c of the lobes 2 and 3, attached to one another in a packaging configuration, have corners 11 and 12 which are symmetrically tapered, relative to the ends, at an angle α .

[0024] Another improvement in the filter bag described until now is illustrated in Figures 1b and 1c, which show how the thread 6 may be deposited on the web in two different configurations on the tubular section of filter paper which will be used to form the bag disclosed.

[0025] In Figure 1b the thread 6 is positioned with a surplus portion 6pm, designed to increase the length of the portion P of thread present in the bag 1. The portion 6pm is placed on a central sealed section 13 which separates the two lobes 2 and 3. The central portion 6pm is substantially another additional section of thread 6, positioned transversally to the longitudinal axis X of the tubular section of filter paper, that is to say, parallel with the central seal 13 defined, for example, by "weak" heat-sealing points T1 and T2 designed to allow the subsequent detachment of the portion 6pm of thread as the thread exits the bag 1. In the packaging configuration, the surplus portion 6pm is housed on the base 5 of the bag 1.

[0026] In an alternative configuration, illustrated in Figure 1c, the surplus portion 6pm is arranged in a zig-zag pattern (to further increase the length of the portion P of thread 6) defined, for example, by another configuration of weak heat-sealed points labelled T3, T4, T5 and T6. This configuration allows the portion 6pm to oc-

copy the minimum amount of space in the bag 1 packaging configuration, and allows the ends 6a and 6b of the thread 6 to be held along the above-mentioned longitudinal axis X.

[0027] Obviously, the position of the ends 6a and 6b of the thread 6 on the axis X is maintained in both the above case and in the more simple case, when the thread is completely straight.

[0028] A filter bag 1 thus composed is made according to a succession of stages comprising: placing doses 4 of the product for infusion at equal distances from one another on a web of heat-sealable filter paper; folding the web along a longitudinal axis X; longitudinal LS and transversal heat-sealing of the web in such a way as to define a continuous tubular web which is closed and divided into individual portions, defining the lobes 2 and 3, at equal distances from one another (see Figure 1).

[0029] The pairs of portions or lobes 2 and 3 then define the individual filter bag 1 delimited by two different transversal half seals 9 and 10, constituting the respective free ends 2c and 3c of the filter bag, and a complete intermediate seal 13 between the first two 9 and 10, designed to define the base 5 of the filter bag 1. Obviously, as already indicated, the length S of the seal 9 is greater than that of the seal 10, to allow the subsequent definition of the additional end portion 8.

[0030] When the tubular web has been heat-sealed, the thread 6 is placed on the web, which is still continuous, in one of the above-mentioned configurations (see Figures 1a, 1b and 1c), with at least one section P1, coinciding with one end 6a of the thread, defining a loop and positioned on the transversal seal 10 opposite the end 2c on which the other end 6b of the thread 6 is placed.

[0031] The thread positioning stage is followed by a stage in which the ends 6a and 6b of the thread 6 are heat-sealed to the transversal seals 9 and 10. In particular, the end 6b of the thread 6 positioned on the end 2c is sealed only along a section L equal to the length of the additional end portion 8. The sealing stage is followed by a stage in which the web is cut, at the end transversal seals, defining the two halves 9 and 10, to obtain an individual filter bag 1 (this configuration is clearly illustrated in Figures 1, 1a, 1b and 1c).

[0032] At this point, the lobes 2 and 3 are folded towards one another and the seal 13 is folded into a "W" shape, defining the base 5 of the filter bag 1 and positioning the portion P of thread 6 between the two ends 6a and 6b on the surfaces 2a and 3a of the lobes 2 and 3 in contact with the base 5 (see Figure 2 and the arrows F). This folding allows the consequent attachment of the free ends 2c and 3c of the lobes 2 and 3, by another heat-sealing operation, keeping the additional end portion 8 outside the dimensions of the filter bag 1 thus obtained (see Figure 2a).

[0033] The heat-sealing stage is followed by a stage for definition of the additional end portion 8 on the transversal seal (which will become the half 9 and, conse-

quently, the end 2c of the bag 1), by means of a transversal weakening line L (see Figure 2b).

[0034] At this point, the pick-up label 7 is attached to the additional end portion 8 and the side of the lobe 2 coinciding with the length of the portion 8, by another heat-sealing operation on the latter (see Figure 3).

[0035] The end portion 8 is then folded, together with the end 6b of the thread 6 attached to it, towards the outer surface 3d of the lobe 3 (see Figure 3a and arrow F1) to "close" the zone at which the original ends 2c and 3c of the bag 1 are connected.

[0036] The final stage in the manufacture of the filter bag 1 envisages cutting of the free ends 2c and 3c of the lobes 2 and 3 and the additional end portion 8, symmetrically relative to the ends, and where the corners 11 and 12 thus defined are tapered at an angle α (see Figures 4, 5 and 6).

[0037] As already indicated, during the stage for definition of the transversal seals 9 and 10 on the web, a first half 9 is preferably made, with the length S of the seal greater than the length S1 of the other half of the seal 10, so as to define an excess portion coinciding with the additional end portion 8. This simplifies the operations for folding the lobes 2 and 3 relative to the transversal centre line of the central seal 13.

[0038] A filter bag 1 made in this way is prepared for infusion by the user as follows: gripping and rotating the pick-up label 7 away from the surface 3d (see arrow F2 in Figure 7); detaching the pick-up label 7, together with the additional end portion 8 and the end 6b of the thread 6 from the joined free ends 2c and 3c of the filter bag 1 (see arrow F3 in Figures 8 and 9) then pulling the pick-up label 7 away from the filter bag 1 (see arrow F4 in Figures 10 and 11) consequently pulling the portion P of thread out of the bag (see also Figure 12).

[0039] The filter bag thus obtained fulfils the stated aims thanks to the special configuration of the thread, protected between the two lobes and attached to the bag in a zone which is protected by the lobes and with a looped configuration which strengthens the connection between the thread and the bag. Similarly, the end at which the thread and pick-up label are attached is further strengthened by the reciprocal fixing and, at the same time, protected by the additional end portion which is detached, for the bag infusion stage, together with the end of the thread and the pick-up label.

[0040] All of these elements make the filter bag extremely compact, reducing the risks involved in its handling during the final packaging stages of the bag.

[0041] The invention described can be subject to modifications and variations without thereby departing from the scope of the inventive concept.

[0042] Moreover, all the details of the invention may be substituted by technically equivalent elements.

Claims

1. A two-lobed filter bag for products for infusion, such as tea, camomile and similar products, the filter bag (1) being of the type comprising two pockets or lobes (2, 3), made of filter paper, each holding a dose (4) of the product for infusion; the lobes (2, 3) being positioned in such a way that one surface (2a, 3a) of each is opposite and/or in contact with the other and they are joined together at one end (2b, 3b), defining the base (5) of the filter bag (1); one end (6a) of a bag support thread (6) being attached to at least one lobe (2, 3) of the filter bag (1), defining a connection point (A), the other end (6b) of the thread (6) being attached to a pick-up label (7) for manipulating the filter bag (1) during infusion, the filter bag being characterised in that the end (6a) of the thread (6) defining the point of connection (A) with the filter bag (1) is attached to the free end (3c) of one of the lobes (3), the other end (6b) of the thread, attached to the pick-up label (7), being attached to the free end (2c) of the other lobe (2), so that the portion (P) of thread (6) between the two ends (6a, 6b), in a packaging configuration, is on the surfaces (2a, 3a) of the lobes (2, 3) which make contact with one another and/or with the base (5).
2. The filter bag according to claim 1, characterised in that the end (6b) of the thread (6) attached to the pick-up label (7) is attached to an additional end portion (8) of a free end (2c) of a lobe (2) together with the pick-up label (7).
3. The filter bag according to claim 2, characterised in that the additional end portion (8) is defined by a transversal weakening line (L) made on the lobe (2), being designed to allow detachment of the portion, together with the end (6b) of the thread (6) and the pick-up label (7), so that during use of the bag (1), the portion (P) of thread (6) exits the bag when the pick-up label (7) is moved away from the bag (1).
4. The filter according to claim 1, characterised in that the end (6a) of the thread (6) defining the point of connection (A) with the bag (1) consists of a section (P1) of thread, attached to the end (3c) of the lobe (3), defining a loop, that is to say, a stable, extensive contact surface between the thread (6) and the lobe (3).
5. The filter bag according to claim 4, characterised in that the loop in the section (P1) of thread is in the shape of a "U" lying on its side.
6. The filter bag according to any of the foregoing claims, in which the lobes (2,3) have a heat-sealed zone or section (9, 10) closing the corresponding free end (2c, 3c), the filter bag being characterised in that the ends (6a, 6b) of the thread (6) are attached to the free ends (3c, 2c) of the lobes (3, 2) at the heat-sealed zones (10, 9), one of which comprises the additional end section (8) of the lobe (2), to which one end (6b) of the thread is attached; both ends (6a, 6b) being arranged along a longitudinal axis (X) of the filter bag (1).
7. The filter bag according to claims 1 and 6, characterised in that the free ends (2c, 3c) of the lobes (2, 3) which are attached to one another, in a packaging configuration, along a zone coinciding with the heat-sealed zones (9, 10), have corners (11, 12) which are tapered symmetrically, relative to the ends, at a preset angle (α).
8. The filter bag according to claims 2 to 6, characterised in that the additional end portion (8) on the lobe (2) is defined by a transversal heat-sealed zone (9) whose length (S) along the lobe (2) is greater than the length (S1) of the opposite heat-sealed zone (10), the portion (8) being delimited by a transversal weakening line (L) made on the heat-sealed zone (9).
9. The filter bag according to claims 2 and 3, characterised in that the additional end portion (8) can be folded, in a packaging configuration and together with the end (6b) of the thread (6), towards the outer surface (3d) of the lobe (3), allowing the pick-up label (7) to be positioned on said surface and "close" the free ends (2c, 3c).
10. The filter bag according to claim 1, characterised in that the portion (P) of thread (6) between the ends (6a, 6b) has a surplus portion (6pm) designed to increase the length of the portion (P) of thread (6) for infusion.
11. The filter bag according to claim 10, characterised in that, in a packaging configuration, the surplus portion (6pm) is arranged on the base (5) of the filter bag (1).
12. The filter bag according to claims 10 and 11, characterised in that the surplus portion (6pm) of the thread (6) consists of another additional section of the thread (6), extending in a zigzag pattern defined by a plurality of "weak" heat-sealed point (T1, T2; T3, T4, T5, T6), being designed to allow subsequent detachment of the surplus portion (6pm) of the thread (6) when the thread (6) exits the bag (1).
13. A method for making a filter bag according to claims 1 to 9, the method comprising at least the following stages:
 - placing the doses (4) of the product for infusion

at equal distances from one another on a web of heat-sealable filter paper;

- folding the web along a longitudinal axis (X);
- heat-sealing the web lengthways (LS) and crossways (9, 10, 13), so as to define a continuous tubular web, being closed and divided into individual portions defining the lobes (2, 3) at equal distances from one another, the pairs of lobes subsequently defining a single filter bag (1), being delimited by two transversal seals, the relative halves (9, 10) constituting the free ends (2c, 3c) of the filter bag and a complete seal (13), between the first two (9, 10), being designed to define the base (5) of the filter bag (1), the method being characterised in that it comprises the following stages:
- defining an additional end portion (8) resulting from the transversal seal (9) and defining one end (2c) of the bag (1);
- placing a continuous thread (6) on the tubular web (N), the thread having at least one section (P1), coinciding with one of its ends (6a) which defines a loop and is arranged on the transversal seal (10) opposite the end (2c) of the bag with the additional end portion (8) on which the other end (6b) of the thread (6) is placed; both ends (6a, 6b) of the thread being arranged along the longitudinal axis (X);
- heat-sealing at least the ends (6a, 6b) of the thread (6) on the transversal seals (10, 9);
- cutting the web (N), at the end seals defining the halves (9, 10), so as to obtain an individual filter bag (1);
- folding the lobes (2, 3) towards one another so as to position the portion (P) of thread between the two ends (6a, 6b) on the surfaces (2a, 3a) of the lobes (2, 3) which are in contact with one another, consequently connecting the free ends (2c, 3c) of the lobes (2, 3), keeping the additional end portion (8) outside the dimensions of the filter bag (1) thus obtained;
- attaching the pick-up label (7) to the additional end portion (8);
- folding the additional end portion (8), together with the end (6b) of the thread (6) attached to it, towards the outer surface (3d) of the lobe (3).

14. The method according to claim 13, characterised in that in the stage for defining the transversal seals (9, 10) on the web, a first half of the seal (9) has a length (S) greater than the length (S1) of the other half of the seal (10), defining an excess portion and coinciding with the additional end portion (8).

15. The method according to claim 13, characterised in that the folding stage is preceded by a stage for defining the end portion (8) with a transversal weakening line (L) designed to separate the end portion

(8) from the half (9).

16. The method according to claim 13, characterised in that the end (6b) of the thread (6) which can be attached to the pick-up label (7) is heat-sealed to the web over a length equal to the length (L) of the additional end portion (8).

17. The method according to claim 13, characterised in that the stage for attaching the pick-up label (7) is followed by a stage for cutting the free ends (2c, 3c) of the lobes (2, 3) and the additional end portion (8), symmetrically relative to the ends, the corners (11, 12) being tapered at an angle (α).

18. The method according to claim 13, characterised in that the stage for attaching the pick-up label (7) is implemented by means of heat-sealing.

19. The method according to claim 13, characterised in that the stage for heat-sealing the ends (6a, 6b) of the thread (6) envisages the simultaneous weak heat-sealing of an additional surplus portion (6pm) of the thread on the complete intermediate seal (13), said portion being in a zigzag pattern defined by a plurality of heat-sealed points (T1, T2; T3, T4, T5, T6).

FIG.1

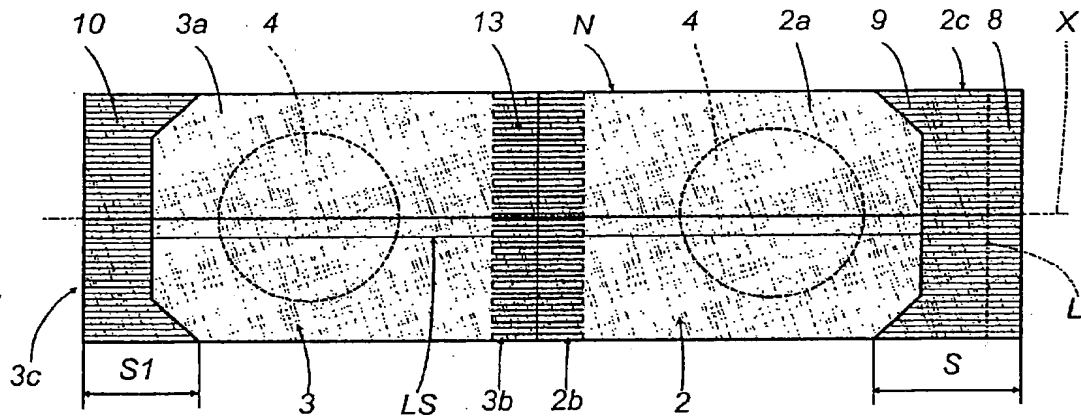


FIG.1a

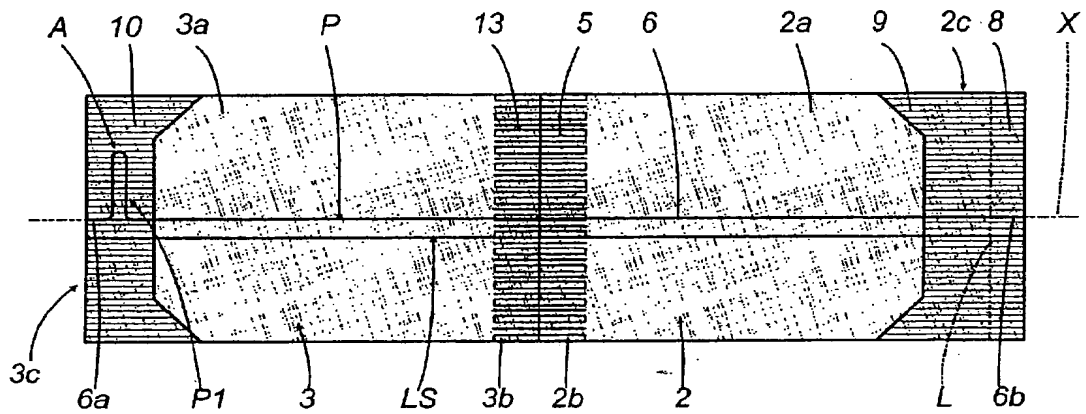


FIG.1b

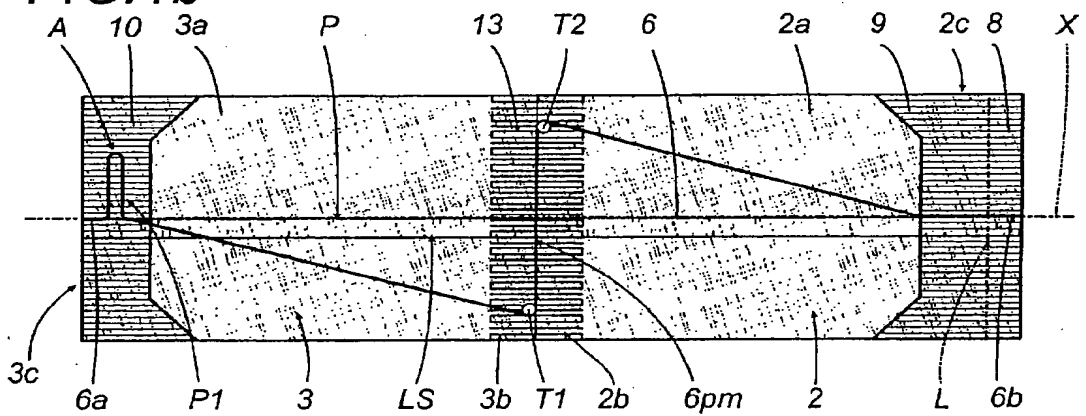


FIG.1c

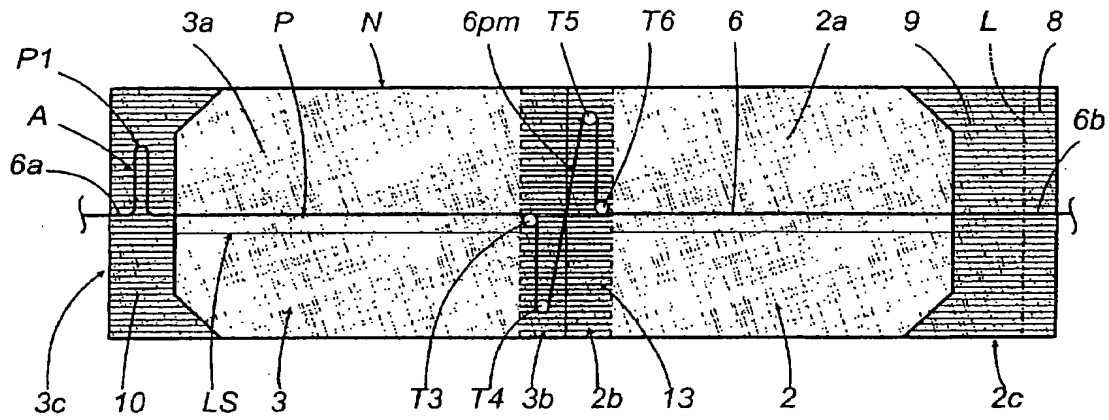


FIG.2

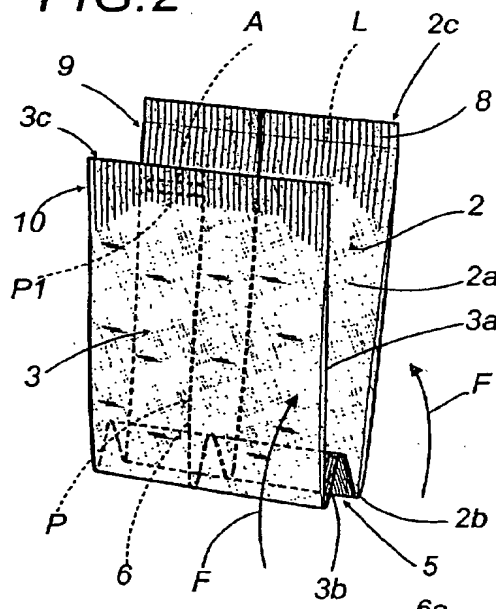


FIG.2a

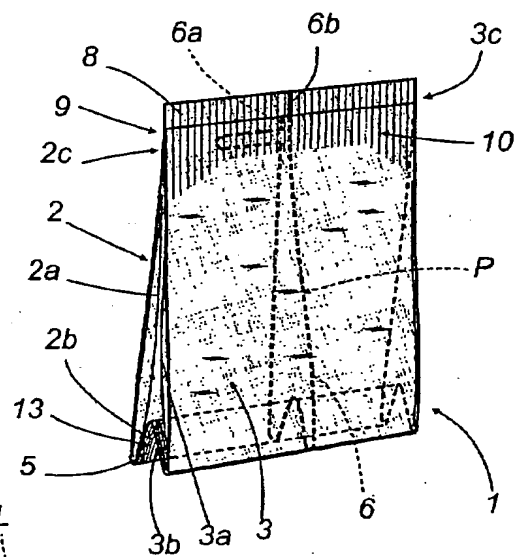


FIG.2b

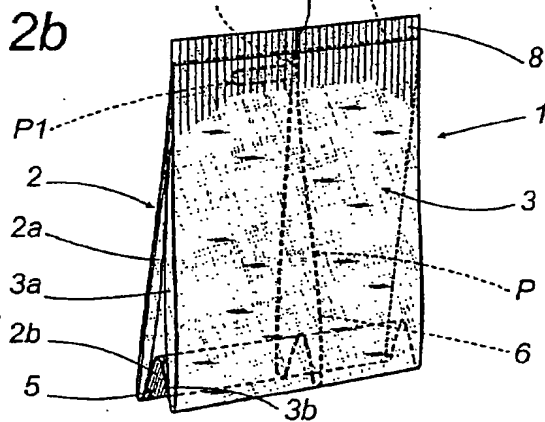


FIG.3

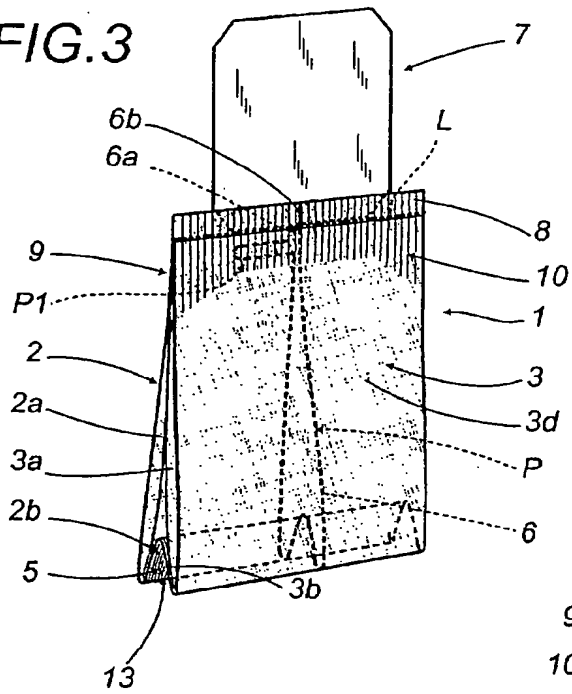


FIG.3a

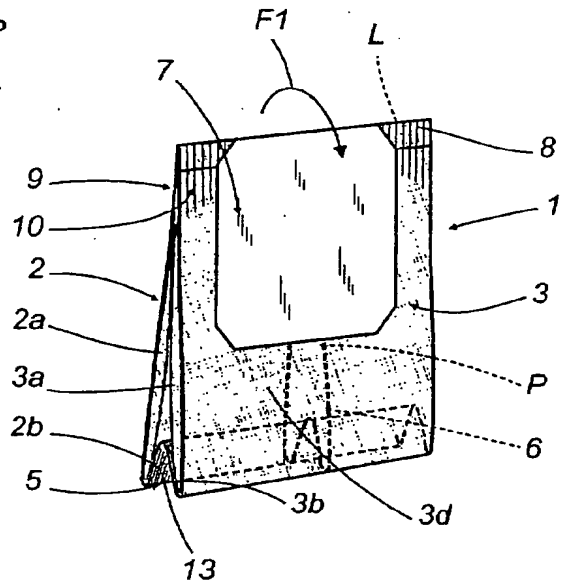


FIG.4

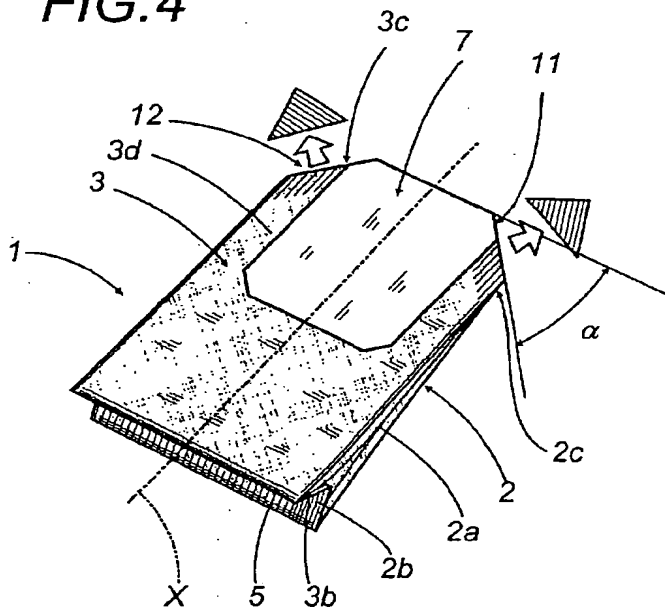


FIG.5

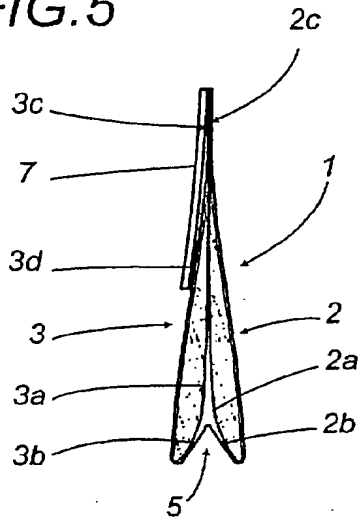


FIG.6

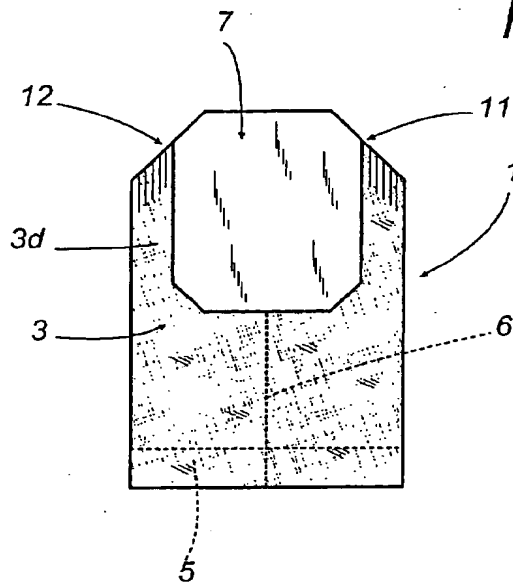


FIG.7

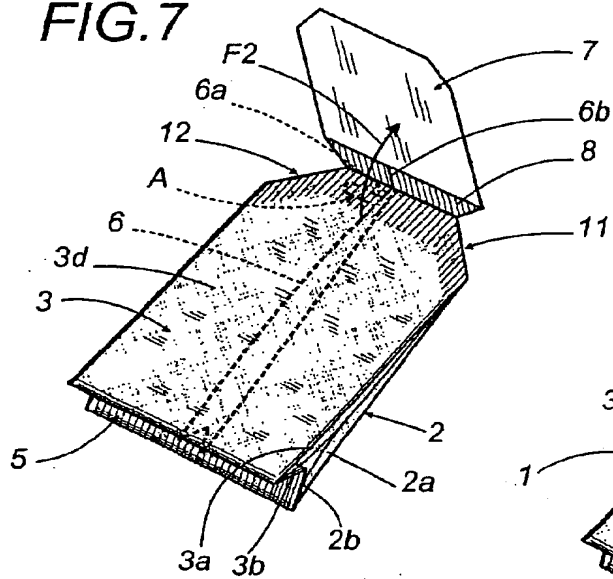


FIG. 8

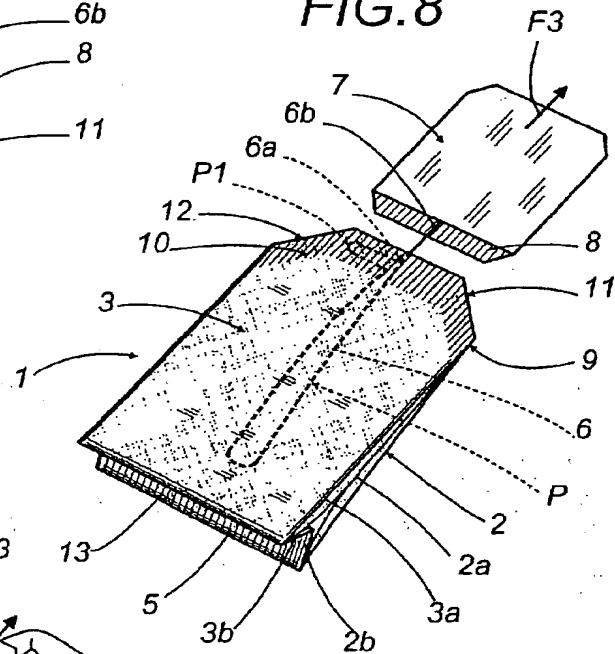


FIG.9

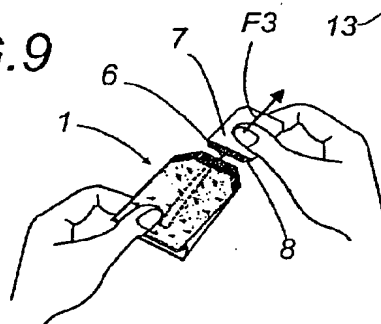


FIG.10

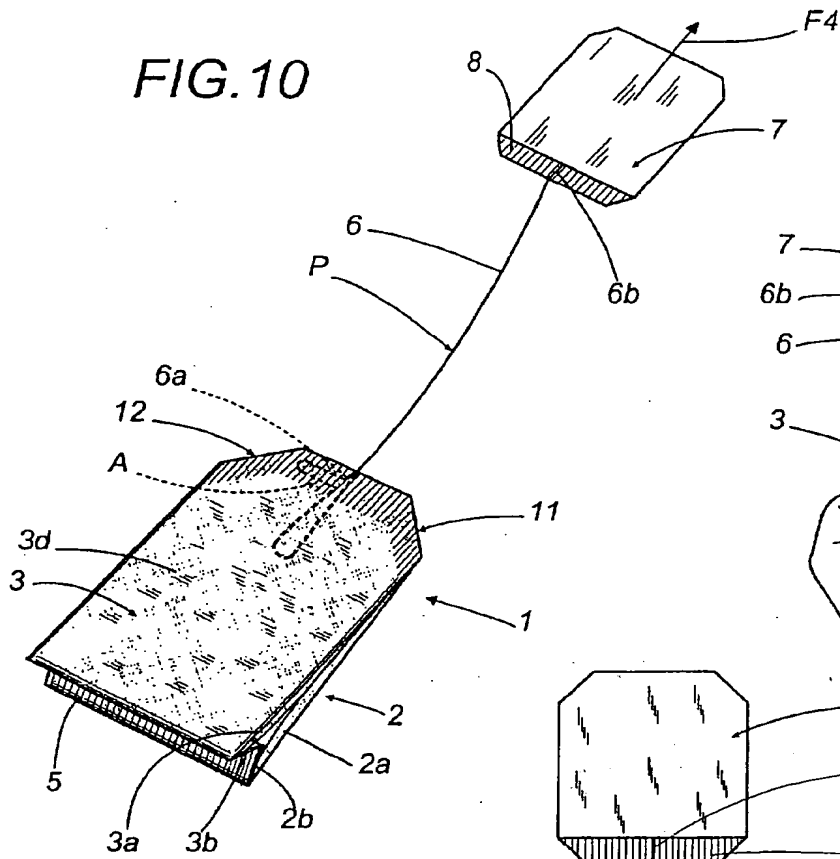


FIG.11

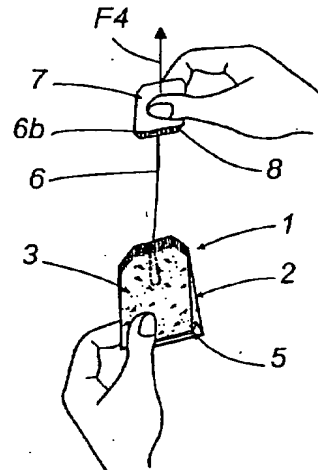
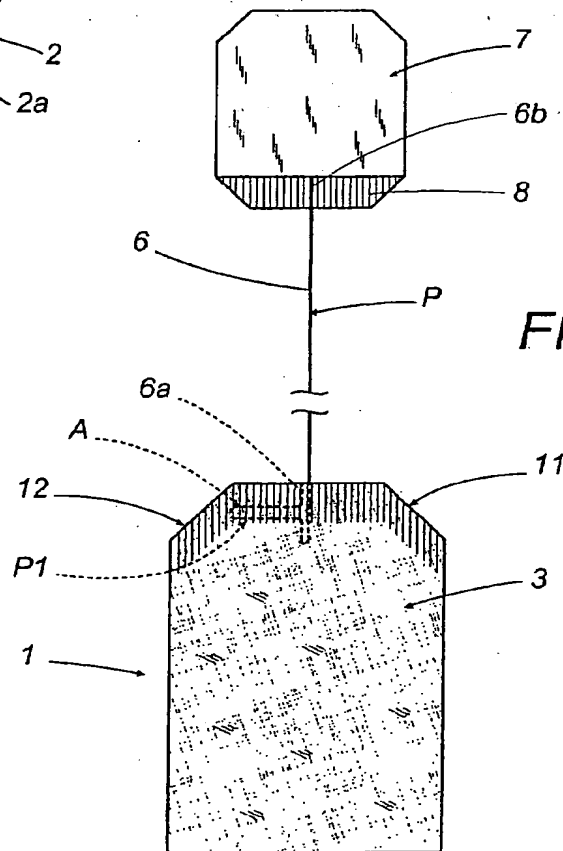


FIG.12





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Place of search THE HAGUE		Date of completion of the search 10 April 2000	Examiner Martens, L
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